# Service Statement

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## Introduction

Service has been an essential component of my professional career. In the following, I will describe major highlights of the service I have rendered to the profession, Northeastern University, and the broader community.

## Professional Service

My professional service has largely taken the form of program committee and journal refereeing duties. The explosion of interest and relevance of cybersecurity over the past two decades has created a strong need for qualified reviewers. I take pride in rendering informed and ethical service in this important role in the scientific process.

### Program Committees

Conferences are the premier publication venues for cybersecurity and computer science more broadly, and as such I have served on a large number of conference program committees during my career. Four conferences comprise the top tier of cybersecurity venues: IEEE Security and Privacy, ACM CCS, USENIX Security, and NDSS. I first served on the PC of USENIX Security in 2011 shortly before I became an assistant professor, and since then I have served on the PCs of these four conferences a total of 23 times. For 2024, I will serve as an Area Chair of Security and Privacy as well as a regular member of the NDSS PC.

I have chaired several conferences to date. In 2012, I chaired the International Conference on Detection of Intrusions and Malware & Vulnerability Assessment (DIMVA). In 2013, I served as co-chair of the USENIX Workshop on Offensive Technologies (WOOT). In 2015-2016, I served as co-chair of the Annual Computer Security Applications Conference (ACSAC). I would welcome future opportunities to serve the community in this capacity, given the continuing need for conference stewardship and innovation to keep pace with increasing submission rates and the evolving scope of cybersecurity.

Aside from the top four venues, I have served on numerous PCs for smaller conferences and workshops. These include AsiaCCS, WWW, RAID, EuroSec, LEET, among many others.

### Journal Referee

While journals are not the primary publication venue for cybersecurity, they nevertheless represent an additional opportunity to render service. Over my career, I have served as a reviewer for numerous ACM and IEEE journals such as ACM Transactions on Privacy and Security, IEEE Transactions on Emerging Concepts in Computing, ACM Transactions on Architecture and Code Optimization, etc.

I would also welcome a future opportunity to serve in an editorial capacity for a major cybersecurity journal.

### Miscellaneous

In addition to conference and journal reviewing, I have served on numerous grant proposal review panels. In particular, I have typically served on 1–2 panels a year for the NSF Secure and Trustworthy Cyberspace

(SaTC) program since starting as an assistant professor. I have served on several review panels for grant proposals submitted to the Army Research Office. I have served as a proposal reviewer for the American Association for the Advancement of Science (AAAS).

I have also volunteered my time to review positions outside of cybersecurity per se. For instance, I have served as a roundtable chair for the United States Military Academy at West Point Student Conference on United States Affairs. As another example, I have served as a judge for the NYU Policy Case Competition.

## University Service

A second major component of my service contribution has been to Khoury College and Northeastern University. In AY 2023–2024, I served as co-chair of the Ph.D. Computer Science Admissions Committee. This committee serves a critical role within Khoury College, orchestrating the selection and recruitment of applicants to the Computer Science, Cybersecurity, and Personal Health Informatics Ph.D. programs. As co-chair, my responsibilities mainly centered around assisting faculty in navigating the recruitment and offer generation process. In particular, I contributed a new handbook that codified policies and procedures for each stage of the admissions process. The intention is to continue building out and updating this document as a central resource for new and existing faculty.

In addition to co-chairing Ph.D. CS Admissions, I have also chaired the Ph.D. Cybersecurity Admissions Committee. This committee focuses on recruitment and selection of Ph.D. CY applicants, though it delegates many of the administrative tasks involved with receiving applications and issuing offers to the Ph.D. CS committee.

I have also served on a number of other college-level committees, and have thus gained a wide-ranging view of administative needs during my career at Northeastern. These include Ph.D. CS Admissions, Ph.D. CS Curriculum, Ph.D. CY Admissions, Ph.D. CY Curriculum, B.S. CS Curriculum, and Faculty Hiring.

At the university level, I served on an ad hoc committee to evaluate the Global Resilience Institute. As part of this committee, I helped formulate recommendations on restructuring the institute to better meet its charter of furthering research into resilience across multiple science, engineering, and social science disciplines.

## Service to the Broader Community

The final major component of my service contribution has been to the broader cybersecurity community. One aspect of this has been the release and maintenance of software artifacts underpinning major research efforts. Examples include the PrivExec system as a set of patches to the Linux kernel, the HotFuzz algorithmic fuzzer, and the MPKAlloc and ThreadLock MPK-based software hardening systems. A related contribution has been the coordinated disclosure of software vulnerabilities discovered over the course of research efforts.

A longstanding effort I have engaged in is practical cybersecurity education and training in the form of competitions, notably Capture-the-Flag (CTF) events. This effort consists not only of leading teams competing in such events, but also leading trainings aimed at improving team performance at competitions. Teams I have mentored have participated in major CTF competitions such as DEF CON CTF. Individuals I have trained have gone on to have very successful cybersecurity careers, for instance as independent security consultants and winners of high-profile competitions such as Pwn2Own.

One significant instance of my CTF activities was helping to organize DEF CON CTF from 2018–2021 as part of Order of the Overflow, a team comprised of cybersecurity academics and industry experts. As DEF CON CTF is widely considered the premier CTF competition—the "world championships" of competitive hacking—organizing qualifiers and the final competition was a significant time investment and a rich, rewarding experience. In particular, I take pride in having helped to push the envelope in cybersecurity competitions by creating novel challenges that gamified emerging concepts in cybersecurity. I plan to continue this aspect of cybersecurity education in other forms, and indeed am actively doing so. For instance, I am helping to organize a CTF to be held concurrently with ACSAC 2024, with the aim of developing novel integration points with the main conference and, hopefully, broadening the audience of people that benefit from practical cybersecurity education.

A final aspect of my service to the broader community is an outgrowth of my participation in the Defense Science Study Group, sponsored by DARPA and run by the Institute for Defense Analyses. The goal of this group is to expose small cohorts of American academics to important, unsolved national security issues. As my cohort approaches graduation, I am actively engaging with opportunities to bring my cybersecurity expertise to bear on emerging problems in the DoD and IC spaces.

## Conclusion

As my career matures, I intend to accelerate my service efforts. With seniority and experience comes an increasing obligation to give back to the communities that enabled your success. In addition to my existing efforts, I plan to investigate other opportunities to serve, for instance as a program manager at a major funding agency or on government cybersecurity advisory boards.